

STUDY OF MEDICINAL SIGNIFICANCE OF RICE-A TRADITIONAL MEDICINAL PLANT IN INDIA

Arya Venugopal*, Ashna Shaji, Jiju .V, Santhosh M Mathews

Nazareth Collage of Pharmacy, Othara, Thiruvalla.

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***Correspondence for
Author**

Arya Venugopal
Nazareth Collage of
Pharmacy, Othara,
Thiruvalla.

ABSTRACT

Rice is obtained from the dried grains of *Oryza sativa* belonging to the family Graminae. Based on the appearance the rice is classified into eight types. And that have their specific uses. Apart from its edibility the rice have many uses such as source of energy, for management of cholesterol and blood pressure and so on. Arsenic content in rice leads to several health problems mainly lung, skin, bladder cancers and heart diseases. This review will help to get an idea about the medicinal significance of rice and harmful effects due to arsenic content.

KEYWORDS: *Oryza sativa*, arsenic, heart diseases.

INTRODUCTION^[1-4]

Oryza sativa belonging to the family Graminae and sub family Oryzoides is the second most important cereal crop and staple food for more than half of the world's population. Rice refers to two species (*Oryza sativa* and *Oryza glaberrima*) of grass, native to tropical and sub topical south-eastern Asia and Africa, which together provide more than one-fifth of the calories consumed by humans. It is grown under diverse cultural conditions and over wide geographical range. The slogan 'Rice is life' is more appropriate for India as this crop plays a vital role in our National food security and is a means of live hood for millions of rural house hold.

CLASIFICATION OF RICE^[5, 6, 8-11]

TYPES OF RICE	USES
1. WHITE RICE 	It provides energy and helps in relieving digestive disorders such as diarrhoea, dysentery, colitis and even morning sickness.
2. BROWN RICE 	It has good amount of soluble fibres. The oil present in this rice is good to reduce bad cholesterol.
3. RED RICE 	It helps to keep the iron count normal. It also regulates blood sugar and insulin. It contains vitamin B6, which is important to balance the formation of serotonin and red blood cells. It also helps in the production of DNA cells.
4. STICKY RICE 	The copper in sticky rice keeps your connective tissue strong. It supports the immune system and promotes healthy brain function.
5. PARBOILED RICE 	It can act as a prebiotic and benefit gut health in humans.
6. BLACK RICE 	It is good for health. It is helpful for patients who are suffering from Alzheimer's and diabetes.
7. BASMATHI RICE 	It has a low to medium glycaemic index that the energy released is slower and comes at a steadier rate leading to a more balanced level of energy.
8. JASMINE RICE 	One of the best health benefits of this Indian type of rice is that it helps to lessen muscle pain in the body due to the presence of high amino acids. And the name of this rice is due to the aroma.

HEALTH BENEFITS OF RICE^[12-15]

- **CHOLESTEROL FREE:** Eating rice is extremely beneficial for the health, because it does not contain harmful fats, cholesterol or sodium. It forms an integral part of balanced diet.

- **BLOOD PRESSURE MANAGEMENT:** Rice is low in sodium, so it is considered one of the best foods for those suffering from high blood pressure and hypertension.
- **CANCER PREVENTION:** Whole grain rice like brown rice is rich in insoluble fiber that can protect against the body against the development and metastasis of cancerous cells. Fiber, specifically is beneficial in defending against colorectal and intestinal cancer.
- **SKIN CARE:** The powdered rice can be applied topically to cure certain skin ailments. The phenolic compounds that are found in rice, particularly in brown or wild rice, have anti-inflammatory properties.
- **ALZHEIMER'S DISEASE:** Brown rice is said to contain high levels of nutrients that stimulate the growth and activity of neurotransmitters, subsequently helping to prevent Alzheimer's disease to a considerable extent. Various species of rice have been shown to stimulate neuro protective enzymes in the brain, which inhibit the effects of free radicals and other dangerous toxins that can cause dementia and Alzheimer's disease.
- **CARDIOVASCULAR HEALTH:** Rice bran oil is known to have antioxidant properties that promote cardiovascular strength by reducing cholesterol levels in the body.
- **CONSTIPATION:** Rice can also prevent chronic constipation. The insoluble fiber from rice acts like a soft sponge that may be pushed through the intestinal tract quickly and easily.
- **IN TRADITIONAL MEDICINE:** The main rice-products used as medicines are made from brown rice and rice oil from rice bran. The rice is boiled, drained, allowed to cool, mashed, made into a paste or moulded into balls and these can be applied to boils, sores, swellings and skin blemishes.
- **AS COSMETICS:** The oil is used in sun-care products to absorb UV-rays, as well as in conditioners for hair-care and in shower and shampoo products. It is also reported to have moisturising and anti-ageing properties.

ENVIRONMENTAL IMPACTS ^[7, 16-17]

ARSENIC IN RICE

- ⊗ Arsenic is a chemical element present in the environment from both natural and human sources, including erosion of arsenic-containing rocks, volcanic eruptions, contamination from mining and smelting ores and previous or current use of arsenic-containing pesticides.
- ⊗ There are two general types of arsenic compounds in water, food, air and soil: organic and inorganic (these together are referred to as "total arsenic").

- ⌘ The organic arsenic is readily present in natural soils. The body utilizes and metabolizes this form.
- ⌘ The inorganic forms of arsenic are the forms that have been more closely associated with long-term health effects and are found in soils that have been sprayed with arsenic-based chemical pesticides, or watered with water containing chemicals high in arsenic.
- ⌘ And since the plants will readily retain and store both forms, foods grown in soils that undergo chemical spraying - or have in the past - will contain higher levels of inorganic arsenic.
- ⌘ Long-term exposure to high levels of arsenic is associated with higher rates of skin, bladder and lung cancers, as well as heart disease. The FDA is currently examining these and other long-term effects..
- ⌘ FDA has increased its testing of rice and rice products to determine the level and types of arsenic found in these products as part of the comprehensive, science-based and risk-based approach the agency takes to minimize risks in the food supply from contaminants.
- ⌘ On September 6, 2013, FDA released the results of approximately 1,300 samples of rice and rice products examined for the presence of arsenic.
- ⌘ Building on the analytical results obtained from the samples tested, the risk assessment will provide a scientific basis for any proposed voluntary or mandatory limits or other steps that may be needed to reduce consumer exposure to arsenic in rice and rice products.

STEPS TO REDUCE EXPOSURE TO ARSENIC

- **COOK THE RICE IN A LOT OF WATER:** Use 6 cups of boiling water for 1 cup of dry rice. When the rice is done, drain off the remaining water. Rinsing rice before cooking helps, too, though it also removes some B vitamins.
- **LOOK FOR THE RICE GROWN IN CALIFORNIA, IMPORTED BASMATHI AND JASMINE RICE'S:** which may have lower arsenic levels. A 2007 study in Environmental Health Perspectives, for example, found less arsenic in rice grown in California than in the south central U.S.
- **AVOID BROWN RICE SYRUP AND FOODS MADE WITH IT,** many of which are junk food, even if they are organic or come from a health-food store. Also, limit foods with multiple rice ingredients.

CONCLUSION

Rice is the staple food of most people in Asia and hence food security means rice security appropriate remedies. The rice is used in cancer prevention, Alzheimer's disease, cardiovascular diseases and so on. As a main source of nourishment for over half the world's population, rice is by far one of the most important commercial food crops. Rice is used not only for consumption but also for the medicinal uses since it contains several minerals, vitamins antioxidants, and proteins and so on.

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